

Chuckatuck and Brewers Creeks

Final Public Meeting



Virginia Department of Environmental Quality



How do we measure water quality in shellfish waters?

- Virginia Department of Health (VDH) Division of Shellfish Sanitation (DSS)
- Monthly water sampling in shellfish harvesting waters
- If fecal coliform levels exceed the water quality standard → shellfish waters closed



Photo: <http://pubs.usgs.gov/fs/2012/3146/>

Why measure fecal coliforms (FC)?

- High concentrations of FC indicate fecal contamination
- May be associated with other pathogens in the water (viruses, protozoa, bacteria)



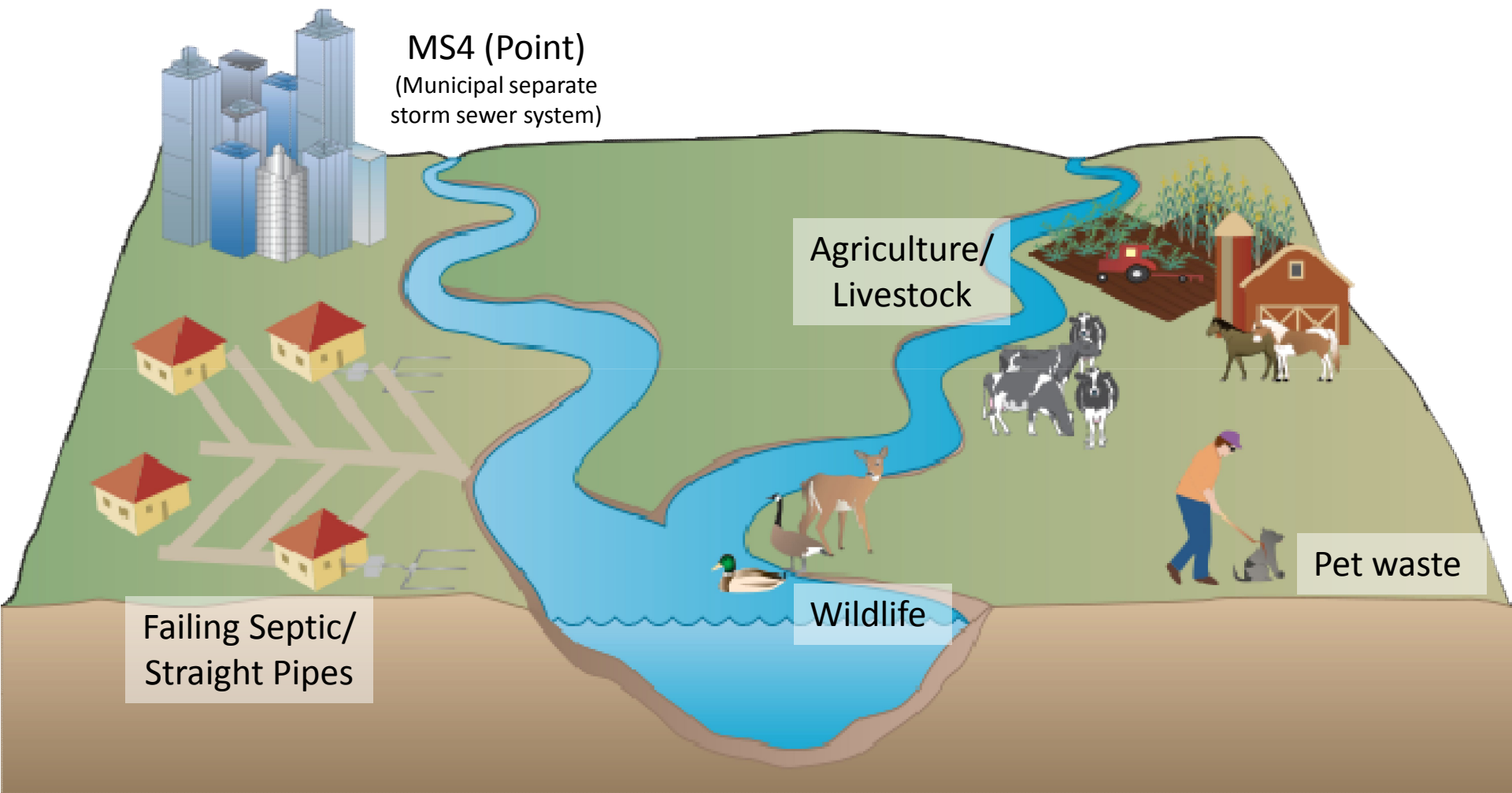
Photo: <http://reefbuilders.com/2013/05/03/friday-smorgasbord-34/>

What is a TMDL

- Total Maximum Daily Load
- Used to determine the total amount of a particular pollutant that a water body can handle
- Point and nonpoint source loads included



Potential Sources of Bacteria

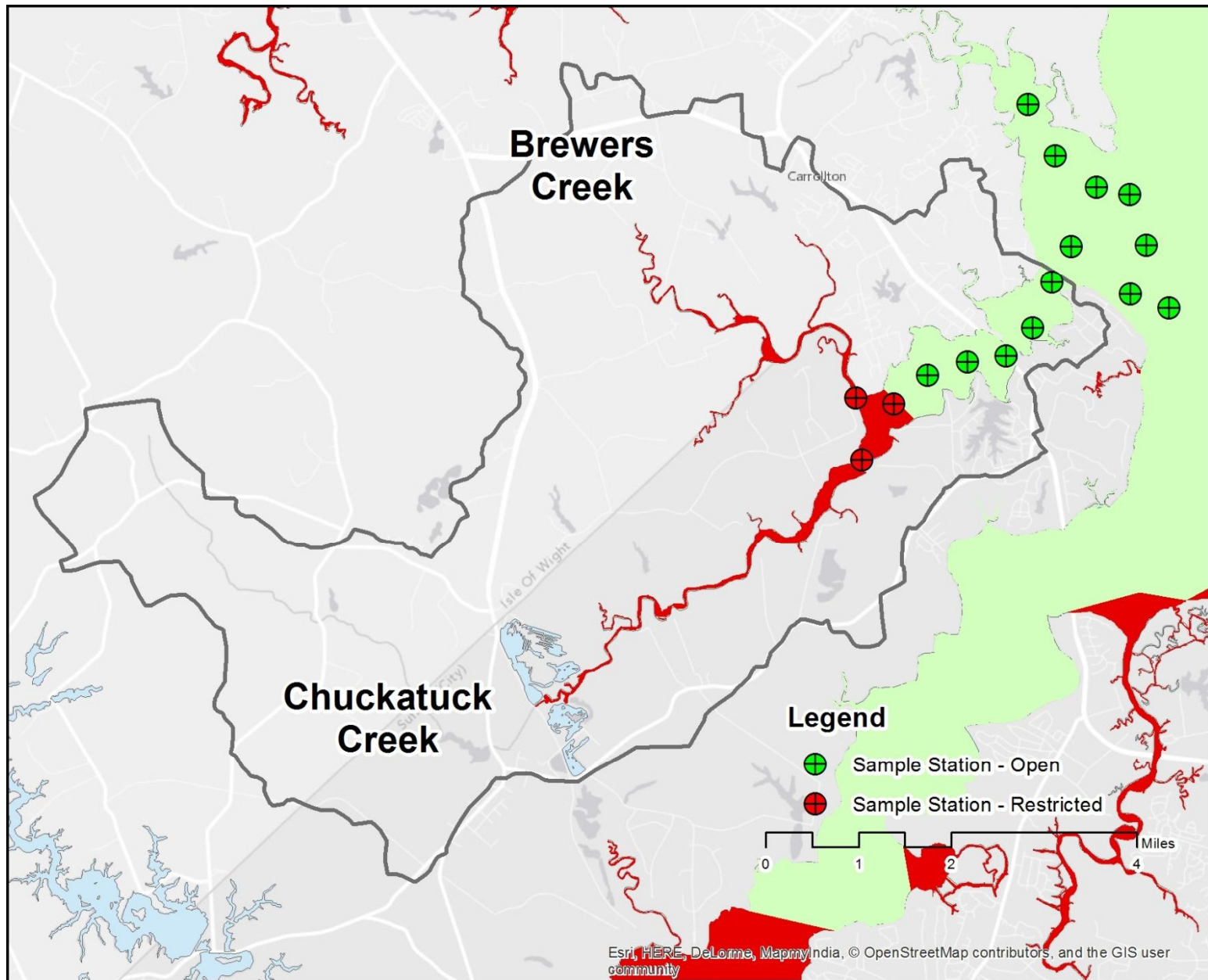


How do we control these sources of pollution?

- Point sources: Permits
- Nonpoint sources: TMDL Implementation Plan
 - Voluntary
 - Best Management Practices

What is included in an implementation plan?

- Review of potential sources of bacteria and reductions needed
- Best Management Practices (BMPs) that will improve water quality
- Education/Outreach plans
- Costs and benefits
- Funding opportunities
- Timeline (goals and milestones for implementation)



Phased Implementation

- Phase 1 (years **1-10**)
 - Human, pet, livestock sources addressed
 - Education
- Phase 2 (years **11-20**)
 - Additional education and septic pumpouts
 - Wildlife management (VDGIF recommendations for geese and deer outlined in plan)

Agricultural Best Management Practices



Phase 1: **86** acres Woodland
Buffer Filter Area (FR-3)
\$700/acre



Phase 1: **3225** acres
Small Grain Cover Crop
(SL-8B)
\$48/acre

*Note: BMPs will VACS practice code will be reimbursed at VACS program rate (cost included in plan to allot sufficient funding)

Agricultural Best Management Practices

Livestock Exclusion



Photo:<http://www.mda.state.mn.us/protecting/conservation/practices/exclusion.aspx>

Phase 1:

6 Livestock Exclusion Systems (LE-1T, SL-6T)

\$15,000/system

Pasture Management



<http://www.fairfaxcounty.gov/nvswcd/newsletter/horsepasture.htm>

Phase 1:

17 SL-6AT (Small acreage grazing system, \$1,500/system)

325 acres SL-10T (Pasture Management, \$75/acre)

*Estimate 60 cows and 70 horses

Agricultural Best Management Practices



Phase 1:
70 acres Grass Filter Strips
(WQ-1)
\$175/acre



Phase 1:
14 acres Retention Structures
(WP-1)
\$4,300/acre treated

Septic Best Management Practices

Phase 1

Septic Tank Pumpouts (2/3 in Phase 1): **1162**

Septic System Repair: **27**

Septic System Installation/Replacement: **18**

Septic System Installation/Replacement w/ Pump: **34**

Alternative On-site System: **30**

Phase 2

Septic Tank Pumpouts (Remaining 1/3 in Phase 2): **581**



Septic Practice Costs


- Septic pumpout: \$300/system
- Septic repair: \$3,000/system
- Septic Installation/Replacement: \$6,000
- Septic Installation/Replacement w/pump: \$8,000
- Alternative On-site Systems: \$20,000

Marina Boat Waste Discharge Facility

- 1 system included in phase 1 (\$6,000)
 - Can be installed in conjunction with recreational boater education program
- HRSD Boat Pumpout Program
 - <http://www.hrsd.com/boatereducationproject.shtml>
 - Signage to promote program at locations frequented by boaters (part of recreational boater education)

PUMP Out, Don't DUMP Out!

Protect our Precious Waterways by Pumping Out Your Boat's Sewage Holding Tank



Boater Education Program staff are available year-round to provide a FREE pump-out service.

**Friday, Saturday & Sunday: Memorial Day – Labor Day
and
Saturday: Labor Day – Memorial Day**





Call (757) 460-4253 and leave a message to schedule an appointment or visit <http://www.hrsd.com/boatereducationproject.shtml> to fill out our pump-out form and email to BoaterEd@hrsdc.com.

Include: Your name, phone number, marina name, pier/slip number, boat name, and day and time* (morning or afternoon) you would like the pump-out.

* Please Note: Times requested may be changed. If inclement weather occurs, pump-outs may be rescheduled.

Visit: <http://www.vdh.virginia.gov/EnvironmentalHealth/ONSITE/MARINA/documents/pumpouts.pdf>
for marina pump-out locations.

This educational program is provided by:

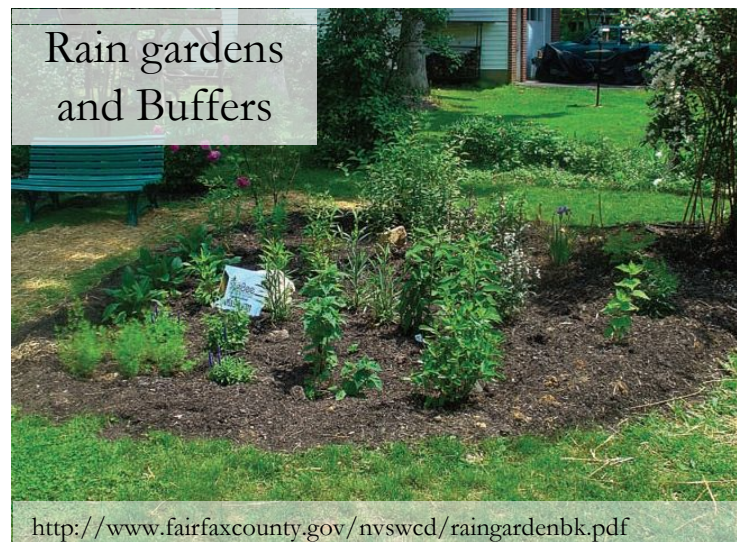
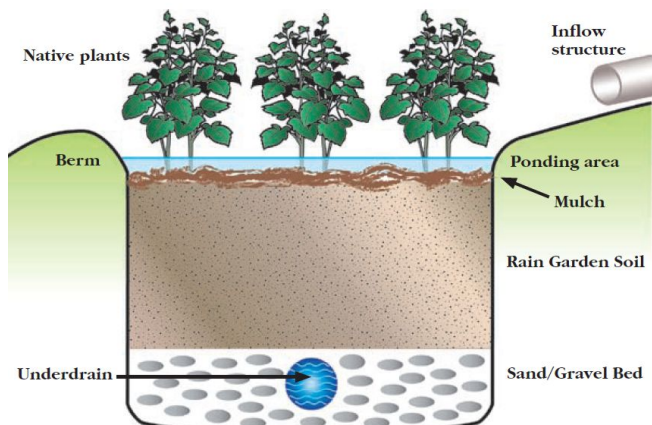


Residential Best Management Practices

Phase 1:

Vegetated Buffer on Residential
land: **8 acres** (\$400/acre)

Rain gardens: **14 acres** (\$5,000/acre
treated)



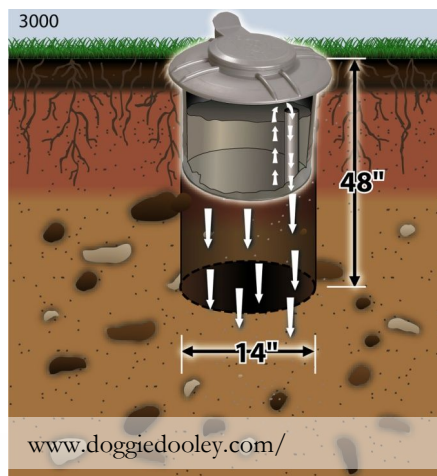
Pet Waste Best Management Practices

Phase 1:

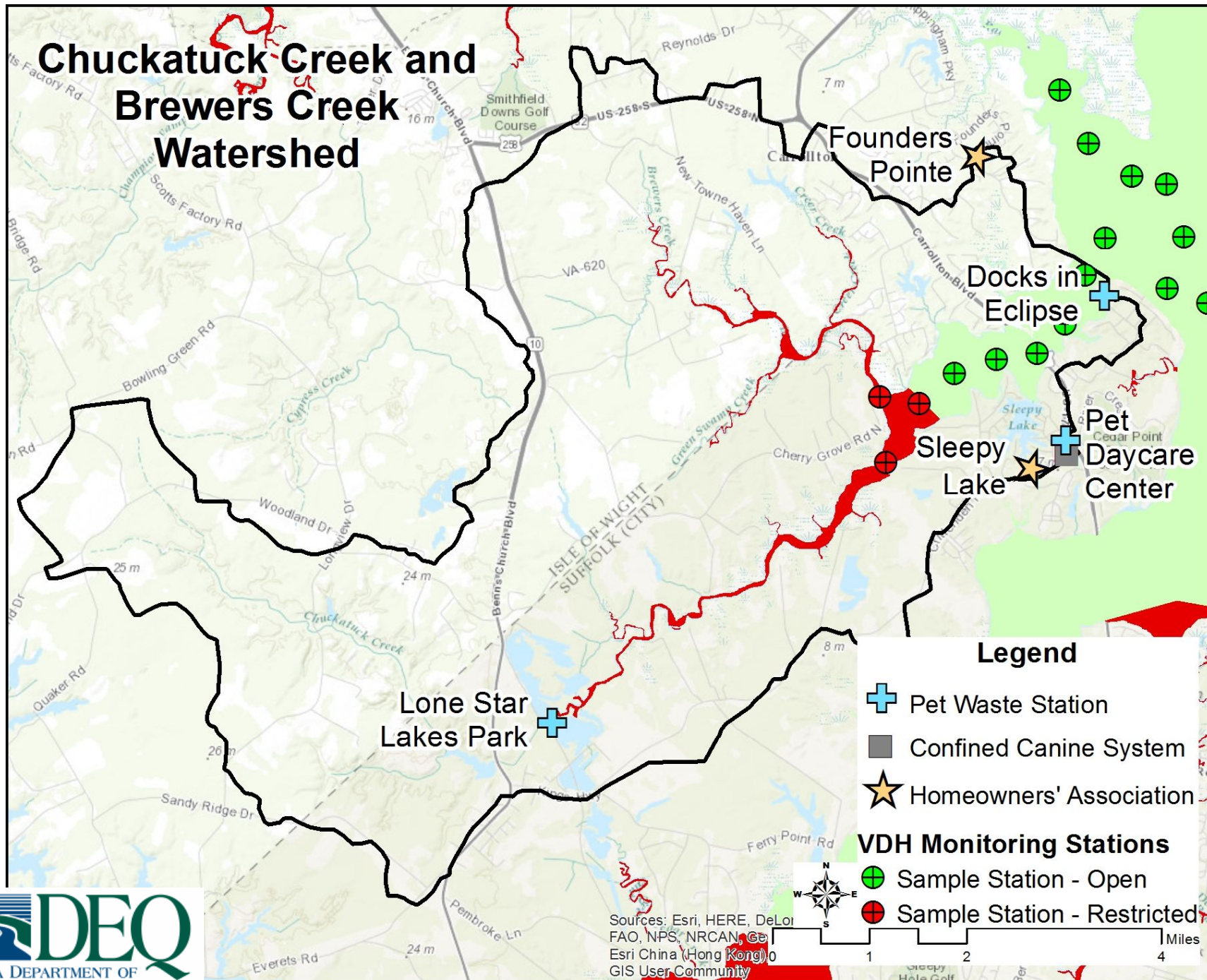
Confined Canine Waste
Control: **1 system** (\$6,000)

Pet Waste Composters: **60
systems** (\$50 each)

Pet Waste Stations: **7 stations**
(\$600 each)



Chuckatuck Creek and Brewers Creek Watershed



Education

Phase 1 (Years 1-10)	Phase 2 (Years 11-20)	Total cost per program (\$)	Practice
1	1	3,000	Recreational Boater Education Program
3	3	2,500	Residential Education Program (pet, septic)
3	3	2,500	Aquaculture (Oyster Gardening) Education Program
	1	10,000	Wildlife Education/Management Program

- Recreational boaters: impact of discharging waste overboard on water quality, management of trash/fish waste to minimize nuisance wildlife (**Includes funding to inform boaters of HRSD Boat Pump Out Program)
- Oyster gardening: additional filtration and connection to local water quality
- Residential: septic maintenance, pet waste, horse BMP education, rain garden and residential buffer installation and maintenance, managing nuisance wildlife

Proposed Timeline for Phase 1

- Septic BMPs included in every year
- **Years 1-2**
 - Residential education – focus on septic maintenance, pet waste management, and nuisance wildlife control
- **Years 3-4**
 - Residential education – focus on pet waste (composters distributed), vegetated buffers, and rain gardens
 - Livestock exclusion and grazing system BMPs
- **Years 5-6**
 - Recreational boater and aquaculture education program
 - Pet waste stations and additional agricultural BMPs
- **Years 7-8**
 - Residential and woodland buffer installation/rain garden installation
 - Boat pump-out facility
- **Years 9-10**
 - Complete any remaining BMPs or education programs still needed

Roles and Responsibilities

Practice	Implementation Responsibility	Oversight Responsibility	Potential Funding
Agricultural BMPs (Livestock Exclusion and Management, Buffers, Cover Crops)	Landowners, SWCD, NRCS	SWCD	Cost-Share
Septic BMPs (Pumpout, repair, replace)	Landowners	Counties, VDH	Private, Grant
Marina Boat Waste Discharge Facilities	Local Citizens, VDH	VDH	Private, Grant
Educational Programs	Local Citizen Groups, NRPA, Izaak Walton League, University organizations, SWCD, NRCS, Suffolk Master Gardeners	None	Grant
Vegetated Buffers on Residential Land	Landowners, VDOF, Suffolk Master Gardeners	Counties	Grant
Residential Pet Waste Composters	Landowners, Local Citizen Groups	None	Grant
Public Pet Waste Collection Facility/Signage/Supplies	Local Citizen Groups, Counties, SWCD, State Parks, Private Property Owners, Campgrounds	None	Grant

Funding

- Virginia Agricultural Best Management Practices Cost-Share and Tax Credit Program
- Virginia Water Quality Improvement Fund
- EPA 319 Funds through DEQ
- USDA Programs (CREP/EQIP)
- DOF Trees for Clean Water
- National Fish and Wildlife Foundation Grants
- Southeast Rural Community Assistance Project
- Voluntary

Thank you



30-day public comment period
September 25 – October 26

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Link to the report

[http://www.deq.virginia.gov/
Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLImplementation.aspx](http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLImplementation.aspx)